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# The Sum of the Parts is Greater Than the Whole: Why Courts Determining Subject Matter Eligibility Should Analyze the Patent-Eligible and Unpatentable Portions of the Claim Separately Instead of Treating the Claim as a Whole

by WILLIAM J. CASEY\*

## I. Introduction

After almost thirty years of silence on the topic of patent-eligible subject matter, the Supreme Court issued two significant decisions in the past three years.<sup>1</sup> In *Bilski v. Kappos*, the Court overruled the Federal Circuit's use of the machine-or-transformation test as the exclusive test for patent eligibility of processes and instead found that the machine-or-transformation test is only a useful clue to determine patent eligibility.<sup>2</sup> Though the Court clarified that an exclusive test should not be used to determine whether a claim is directed to patent-eligible subject matter, its decision provided little guidance on how courts should make this determination.<sup>3</sup>

In the wake of *Bilski*, the Federal Circuit issued several opinions trying to reconcile ongoing ambiguity regarding what subject matter

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1. *Bilski v. Kappos*, 130 S. Ct. 3218 (2010); *Mayo Collab. Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012).

2. *Bilski*, 130 S. Ct. at 3226-27.

3. See *Id.* at 3231; Joshua D. Sarnoff, *Patent-Eligible Inventions After Bilski: History and Theory*, 63 HASTINGS L.J. 53, 60 (2011).

is patent eligible.<sup>4</sup> While the Federal Circuit resolved cases on narrow bases, it did not adopt a consistent methodology that permitted applicants, practitioners, and the Patent and Trademark Office (PTO) to understand where lines should be drawn.<sup>5</sup> Much of this difficulty stems from an inability to articulate a method that differentiates unpatentable “post-solution activity” from patentable processes that contain laws of nature, physical phenomena, or abstract ideas without relying on the machine-or-transformation test as the exclusive test to determine patentability.<sup>6</sup>

In *Mayo Collaborative Services v. Prometheus Laboratories*, the Court analyzed the claims in Prometheus’ patents, offering an example of how patent eligibility can be properly determined.<sup>7</sup> But the Court did not articulate a broadly applicable method for lower courts and the PTO to follow when determining whether a claim is directed to unpatentable subject matter or a patent-eligible application of unpatentable subject matter.<sup>8</sup>

This Note proposes a method of determining patent eligibility. In the proposed method a claim is explicitly divided into unpatentable and patent-eligible portions and the portions are analyzed separately to determine whether the claim is directed to patent-eligible subject matter. Though this conflicts with the Court’s prior admonishments to treat claims as a whole, such treatment will provide greater clarity in understanding the limits of patent-eligible subject matter because it will force the Court to articulate when a claim based upon unpatentable subject matter becomes patent eligible.<sup>9</sup>

This Note is divided into five sections. Following this Introduction, Section II of this Note will trace the jurisprudence that underlies both the development of exclusions to patent-eligible

4. *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319 (Fed. Cir. 2010); *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 864-65 (Fed. Cir. 2010); *Cybersource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011); *Dealertrack, Inc. v. Huber*, 674 F.3d 1315 (Fed. Cir. 2012).

5. *Research Corp. Techs., Inc.*, 627 F.3d at 868 (“[T]his court will not presume to define ‘abstract’ beyond the recognition that this disqualifying characteristic should exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter and the statutory context that directs primary attention on the patentability criteria of the rest of the Patent Act.”).

6. *Parker v. Flook*, 437 U.S. 584, 590 (1978); *Bilski*, 130 S. Ct. at 3226-27.

7. *Mayo Collab. Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. at 1297-99 (2012).

8. *Id.*; *Parker*, 437 U.S. at 590.

9. *Diamond v. Diehr*, 450 U.S. 175, 188-89 (1981) (“[C]laims must be considered as a whole.”).

subject matter and the rationale for treating claims as a whole. Section III recognizes the conflicts between patent-eligible subject matter and treating claims as a whole and proposes an alternate way of analyzing claims. The proposed method involves breaking a claim into its patent-eligible and unpatentable portions. Then, it calls for the application of a three-factor analysis of the patent-eligible portions of the claim to determine whether the claim confers patent eligibility. Section IV of this Note highlights Federal Circuit decisions made after *Bilski*, but before *Prometheus*, focusing on the approach that the court took in determining whether subject matter was patentable and demonstrating how applying the three-factor analysis would lead to more clear decisions. Finally, Section V concludes that moving away from treating the claim as a whole will help clarify section 101 analysis for courts and practitioners.

## **II. Historical Background: The Evolving Definition of Patent-Eligible Subject Matter and How to Read the Claim in Making this Determination**

Courts and patent practitioners have long striven to establish a clear definition of patent-eligible subject matter and a method to interpret the scope of a claim.<sup>10</sup> In the realm of patent-eligible subject matter, the Court has struggled to annunciate the difference between an unpatentable claim containing a law of nature, physical phenomena, or abstract idea combined with mere post-solution activity and a patent-eligible claim that is a patentable application of an unpatentable law of nature, physical phenomena, or abstract idea.<sup>11</sup> Additionally, courts have oscillated back and forth between interpreting a claim based on its inventive concept or on each of its limitations.<sup>12</sup> Though the Court has discussed these concepts separately, courts have blended together its interpretational doctrines.<sup>13</sup> An understanding of the bases of each of these doctrines is necessary before determining how the Court should mark the border between patent-eligible and unpatentable claims.

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10. See, e.g., *Le Roy v. Tatham*, 56 U.S. 156 (1852); *Hotchkiss v. Greenwood*, 52 U.S. 248 (1850).

11. *Parker*, 437 U.S. at 590; *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980); *Bilski*, 130 S. Ct. at 3231.

12. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 15 (1966).

13. See *Diamond v. Diehr*, 450 U.S. 175, 188 (1981).

### A. The Development of Exceptions to Patent-Eligible Subject Matter

The Supreme Court has long tried to determine the appropriate scope of patent-eligible subject matter.<sup>14</sup> But the scope and the proper test or tests to determine if an invention is patentable continue to challenge the courts.<sup>15</sup> In 1793, the first Patent Act defined patentable inventions as “[a]ny new and useful art, machine, or manufacture or composition of matter, or any new or useful improvement [thereof].”<sup>16</sup> Since this original legislation passed it has been little changed.<sup>17</sup> Thus, the scope of patent-eligible subject matter is based on the Court’s interpretations of that statute. Over time, the Court has interpreted section 101 of the Patent Act to mean that “laws of nature, physical phenomena, and abstract ideas” are unpatentable.<sup>18</sup> But, since all inventions to some degree rely on laws of nature, physical phenomena, and abstract ideas, it is unclear where unpatentable claims end and patent-eligible claims begin.

In *Le Roy v. Tatham*, the Supreme Court began the struggle to articulate the limits of patent-eligible subject matter.<sup>19</sup> There, the Court acknowledged, “a principle is not patentable. A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”<sup>20</sup>

Soon after though, the Court began to acknowledge the tension in defining the difference between unpatentable laws of nature and patentable applications of these laws.<sup>21</sup> In *O’Reilly v. Morse*, the Court held that a patent covering printing at a distance using electromagnetic power was invalid, although a specific machine using the

14. See, e.g., *Le Roy*, 56 U.S. at 156; *O’Reilly v. Morse*, 56 U.S. 62 (1853).

15. *Bilski*, 130 S. Ct. 3231 (“In disapproving an exclusive machine-or-transformation test, we by no means foreclose the Federal Circuit’s development of other limiting criteria that further the purposes of the Patent Act and are not inconsistent with its text.”).

16. *Diamond v. Diehr*, 450 U.S. at 182.

17. *Id.* In the Patent Act of 1952, “process” replaced the term “art.” *Id.* Thus, today patents are granted to “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.” 35 U.S.C. § 101 (2006).

18. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

19. *Le Roy*, 56 U.S. at 175.

20. *Id.* at 175.

21. See *O’Reilly*, 56 U.S. at 112, 118.

principle of electromagnetism was patent eligible.<sup>22</sup> Though this opinion also reflected concerns about claim breadth, the Court addressed patent eligibility, noting that when obtaining a patent, “it makes no difference . . . whether the effect is produced by chemical agency or combination; or by the application of discoveries or principals in natural philosophy known or unknown before his invention; or by machinery acting altogether upon mechanical principles.”<sup>23</sup> All that mattered was that a useful result be produced in any “art, machine, manufacture, or composition of matter.”<sup>24</sup> Thus, the Court implied that while a principle is not patentable, a machine, manufacture, composition of matter, or process that applies a principle is patent-eligible subject matter.<sup>25</sup>

In the years following these early holdings, the Court has attempted to clarify what is patent eligible. In *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, the Court determined that a combination of naturally occurring bacteria was not patent-eligible subject matter.<sup>26</sup> There, different strains of *Rhizobium* bacteria allowed plants to convert nitrogen in the air to organic nitrogenous compounds with varying efficiencies.<sup>27</sup> The various strains of bacteria usually inhibited one another.<sup>28</sup> But, the patent applicant discovered that in a specific combination the strains did not inhibit one another and filed for a patent to protect this discovery.<sup>29</sup> In explaining why this discovery was not patentable, the Court held that “the qualities [of the bacteria] are the work of nature” and that the combination of bacteria “is no more than the discovery of some of the handiwork of nature and hence is not patentable.”<sup>30</sup>

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22. *Id.* at 118. Morse’s invalid eighth claim reads, “I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims; the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed for marking or printing intelligible characters, signs, or letters, at any distances, being a new application of that power which I claim to be the first inventor or discoverer.” *Id.* at 112 (internal quotation omitted).

23. *Id.* at 119.

24. *Id.*

25. *Id.*

26. *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 131 (1948).

27. *Id.* at 128–29.

28. *Id.* at 129.

29. *Id.* at 130.

30. *Id.* at 130–31.

Later, in *Gottschalk v. Benson*, the Court held that the use of a mathematical formula on a general purpose computer was not patent eligible based on preemption concerns.<sup>31</sup> There, the patent claimed a method of converting binary-coded decimal (BCD) numerals to pure binary numerals on any type of general-purpose digital computer.<sup>32</sup> In its holding, the Court noted that the “[t]ransformation and reduction of an article to a different state or thing is the clue to patentability of a process claim that does not include particular machines.”<sup>33</sup> The Court also held that, if allowed, “the patent would wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself.”<sup>34</sup> Thus, the Court appeared to rest its determination on grounds of preemption of the unpatentable abstract idea embodied in the claim.

In *Parker v. Flook*, the Court attempted to resolve *Benson*’s concerns of preemption by requiring patent-eligible portions of the claim to contain an inventive concept in order for the claim to be patent eligible.<sup>35</sup> The Court held that a patent covering a method of updating alarm limits was invalid.<sup>36</sup> In *Flook*, the Court explicitly acknowledged the tension in determining whether a claim is directed to patent-eligible subject matter when it noted that while “a process is not unpatentable simply because it contains a law of nature or mathematical algorithm,” post-solution activity cannot “transform an unpatentable principle into a patentable process.”<sup>37</sup> The Court attempted to provide guidance in reconciling this tension by holding that “[e]ven though a phenomenon of nature or mathematical formula may be well known, an inventive application of the principle may be patented. Conversely, the discovery of such a phenomenon cannot support a patent *unless there is some other inventive concept in its application*.”<sup>38</sup> In applying these principles to the patent at issue, the Court held that the patent was not directed to patent-eligible subject matter because there was no other inventive concept in the patent application.<sup>39</sup>

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31. *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972).

32. *Id.* at 64.

33. *Id.* at 70.

34. *Id.* at 71–72.

35. *Parker*, 437 U.S. at 594.

36. *Id.*

37. *Id.* at 590.

38. *Id.* at 594.

39. *Id.*

In *Diamond v. Diehr*, the Court moved away from *Flook*'s and *Benson*'s approaches of looking for an inventive concept in a patent-eligible portion of the claim.<sup>40</sup> The Court determined that a process for molding raw, uncured synthetic rubber into cured precision products was patent-eligible subject matter under section 101.<sup>41</sup> In *Diehr*, the Court distinguished *Benson*, noting that there the only practical application of the algorithm was in connection with a general purpose computer while in *Diehr* the only use of the formula that was foreclosed was the use of the formula in conjunction with the other steps of the process.<sup>42</sup> To help guide other courts in determining whether subject matter is patentable, the Court stated that

[C]laims must be considered as a whole. It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis. This is particularly true in a process claim because a new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made. The "novelty" of any element or steps in a process . . . is of no relevance in determining whether the subject matter of a claim falls within the §101 categories of possibly patent-eligible subject matter.<sup>43</sup>

Thus, the Court held that

When a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g. transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.<sup>44</sup>

These decisions created a tension in approaches to determining patent eligibility. While *Diehr* instructed courts to treat claims as a whole, *Benson* and *Flook* instructed them to look for an inventive concept within the patent-eligible portions of the claim.<sup>45</sup> The Federal

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40. *Diamond*, 450 U.S. at 188–89.

41. *Id.* at 192–93.

42. *Id.* at 185–87.

43. *Id.* at 188–89.

44. *Id.* at 192.

45. *See id.*; *Gottschalk*, 409 U.S. at 71–72; *Parker*, 437 U.S. at 594.



Circuit interpreted *Diehr* as moving away from *Benson* and *Flook*, which led the court to announce that a claim is patent eligible if the claim produces a “useful, concrete and tangible result.”<sup>46</sup> *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* probably represents the high water mark for the breadth of patent-eligible claims as subsequent Federal Circuit decisions also continued to use the machine-or-transformation test based on the Court’s decision in *Benson*.<sup>47</sup> The differing applications of these two tests led the Federal Circuit to determine in *In re Bilski* that the machine-or-transformation test should be the sole test to determine patent eligibility.<sup>48</sup> The Supreme Court then granted certiorari to review the Federal Circuit’s opinion.<sup>49</sup>

Commentators had hoped that the Court, in deciding *Bilski*, would provide clarity on how to reconcile *Diehr*, *Benson*, and *Flook*.<sup>50</sup> However, the Court instead issued a narrow ruling that provided little analytical guidance.<sup>51</sup> First, the Court endorsed the view that patent-eligible subject matter is broad, but not unlimited.<sup>52</sup> It then noted that the concepts covered by the exceptions to patentability are “part of the storehouse of knowledge of all men . . . free to all men and reserved exclusively to none.”<sup>53</sup> The Court continued, holding that because section 101 is a “dynamic provision designed to encompass

46. *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (1998) (quoting *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)). In *State Street*, the Federal Circuit articulated an inclusive view of patent eligibility in which “the transformation of data . . . by a machine through a series of mathematical calculations constituted a practical application of an abstract idea. *Id.*”

47. *In re Bilski*, 545 F.3d 943, 961 (2008) (“The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies § 101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article.”) (citing *Benson*, 409 U.S. at 70).

48. *Id.*

49. *Id.* at 3218; *Bilski*, 130 S.Ct. at 3329.

50. See Eric D. Kirsch & Elizabeth Reilly, *The Emperor Bilski’s Wearing No Clothes*, 983 PLI/Pat 71, 92 (2009).

51. *Bilski*, 130 S. Ct. at 3231. In *Bilski*, the Supreme Court evaluated claims directed to a process of hedging risk in the energy market. *Id.* at 1323. While the court found the claims at issue to be unpatentable, it declined to create a rule that all business method claims are unpatentable. *Id.* at 3228–29, 3231.

52. *Id.* at 3225 (quoting *Chakrabarty*, 447 U.S. at 308–09) (“Congress plainly contemplated that the patent laws would be given a wide scope. . . . The Court’s precedents provide three specific exceptions to § 101’s broad patent eligibility principles: laws of nature, physical phenomena, and abstract ideas.” (internal quotation marks omitted)).

53. *Id.* (quoting *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)).

new and unforeseen inventions,”<sup>54</sup> the machine-or-transformation test should not be the sole criterion for determining patent eligibility.<sup>55</sup> The Court held that, while the machine-or-transformation test was well suited to the Industrial Age,

The Information Age empowers people with new capacities to perform statistical analysis and mathematical calculations with a speed and sophistication that enable the design of protocols for more efficient performance of a vast number of business tasks. If a high enough bar is not set when considering patent applications of this sort, patent examiners and courts could be flooded with claims that would put a chill on creative endeavor and dynamic change.<sup>56</sup>

The Court then applied this ruling to the claim at issue and held that the claim was not patent-eligible because it was an unpatentable abstract idea.<sup>57</sup> Finally, the Court concluded by noting that the Federal Circuit was free to develop “other limiting criteria that further the purposes of the Patent Act and are not inconsistent with its text.”<sup>58</sup>

In *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, the Supreme Court seemed to come down in support of the logic underlying *Benson* and *Flook* rather than *Diehr*.<sup>59</sup> For the first time, the Court interpreted section 101 as implicitly embodying the goal of promoting innovation through the grant of a patent while not impeding innovation with an overly broad patent.<sup>60</sup> In its analysis, the Court noted that the portions of the claim that were not directed to unpatentable subject matter were not sufficient to make the claim patentable.<sup>61</sup> It then acknowledged several situations that do not allow additional limitations to confer eligibility. First, the Court held that a restriction to a specific technical environment does not confer

54. *Id.* at 3227 (quoting *J.E.M. Ag. Supply*, 534 U.S. at 135 (2001)).

55. *Id.*

56. *Id.* at 3229.

57. *Id.* at 3231.

58. *Id.*

59. See *Mayo*, 132 S. Ct. at 1298–99. In *Prometheus*, the Court evaluated the patent eligibility of claims directed to a process of determining the proper dose of a drug with known therapeutic effects. *Id.* at 1295. The process included measuring the level of metabolites in the blood and increasing or decreasing the drug dosage based on the measurement. *Id.*

60. *Id.* at 1294.

61. *Id.* at 1297.

patent eligibility.<sup>62</sup> Second, the Court noted that obvious activity, whether it takes place before or after the solution, does not confer patentability.<sup>63</sup> Third, the Court noted that the combination of the separate steps did not add anything new to the steps individually.<sup>64</sup> Finally, in an attempt to tie its past opinions together, the Court noted that a policy goal underlying and supporting section 101 is to preserve the use of basic scientific tools to enable future innovation.<sup>65</sup>

The Court then applied these limitations to the patent at issue.<sup>66</sup> Though the Court did affirm that the claim should be treated as a whole, its analysis indicated otherwise.<sup>67</sup> Instead, the Court looked first to the “administering” step and found that doctors already administered thiopurine drugs for autoimmune disorders before the patent was filed.<sup>68</sup> Then, the Court looked at the “wherein” language and found that it referred doctors to the unpatentable portions of the claim to determine how much thiopurine to administer.<sup>69</sup> Next, the Court noted that the “determining” step told doctors to perform a well-known and well-understood activity.<sup>70</sup> Finally, the Court considered the three steps of the claim together and found that the combination of the steps added nothing beyond the utility of the steps individually.<sup>71</sup> Thus, the Court concluded the claim was not directed to patent-eligible subject matter because each portion of the claim that was not directed to an unpatentable abstract idea did not sufficiently limit or add to the abstract idea.<sup>72</sup> Though logical, such analysis conflicts with the Court’s admonition to treat the claim as a whole.

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62. *Id.*

63. *Id.* at 1298.

64. *Id.*

65. *Id.* at 1305.

66. *Id.* at 1297–1298.

67. *Id.*

68. *Id.* at 1297.

69. *Id.*

70. *Id.* at 1297–98.

71. *Id.* at 1298.

72. *Id.*

## B. Interpretation of the Claim as a Whole

Prior to 1952, the Court waivered in its preferred method of analyzing a claim.<sup>73</sup> Sometimes, the Court endorsed the view that courts should focus on the “inventive concept” within a claim, while at other times focusing on treating the claim as a whole.<sup>74</sup> The preferred method of interpretation greatly affected the scope of exclusion that a patent granted. According to the “inventive concept” theory, the patent was meant to protect the core inventive concept disclosed.<sup>75</sup> On the other hand, treating the claim as a whole put the focus on the claim as the way to determine the metes and bounds of the invention.<sup>76</sup> However, since Congress passed the 1952 Patent Act, the Court has consistently held that claims should be interpreted as a whole.<sup>77</sup> The difference in the two approaches is particularly relevant in three areas of infringement: non-obviousness, the doctrine of equivalents, and repair.

Treating the claim as a whole for purposes of non-obviousness analysis allows a comparison between elements in prior art references and the claim in question instead of comparing the inventive concept in a patent to obvious variants of other known inventive concepts.<sup>78</sup> Section 103 of the Patent Act of 1952 codified prior court rulings that required an invention not only to be novel, but to be non-obvious as well.<sup>79</sup> Section 103 ensured that a patent would not be issued if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter *as a whole* would have been obvious at the time of invention.”<sup>80</sup> Additionally, “[p]atentability shall not be negated by the manner in which the invention was made.”<sup>81</sup> The Court interpreted the 1952 Act as overruling the “flash of creative genius” test it previously articulated.<sup>82</sup> It also interpreted

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73. See *Graham*, 383 U.S. at 15 (citing *Cuno Eng'g. Corp. v. Automatic Devices Corp.*, 314 U.S. 84 (1941)); Jeffrey A. Lefstin, *The Constitution of Patent Law: The Court of Customs and Patent Appeals and the Shape of the Federal Circuit's Jurisprudence*, 43 LOY. L. REV. 843, 845–46 (2010).

74. *Graham*, 383 U.S. at 15.

75. See *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 344 (1961).

76. *Id.* at 345–46.

77. See, e.g., *Graham*, 383 U.S. at 1; *Diamond*, 450 U.S. at 175.

78. MANUAL OF PATENT EXAMINING PROCEDURE, § 2143.

79. *Graham*, 383 U.S. at 14.

80. 35 U.S.C. § 103 (2006) (emphasis added).

81. 35 U.S.C. § 103.

82. *Graham*, 383 U.S. at 15.

Section 103 as affirming its decisions dating back to *Hotchkiss*, which held that “whatever appears to be covered by the claim of the patentee as his own invention must be taken as part of the claim; for courts of law are not at liberty to reject any part of the claim.”<sup>83</sup>

Treating the claim as a whole also narrowed the application of the doctrine of equivalents, making a patentee’s exclusionary grant narrower.<sup>84</sup> Prior to the 1952 Act, the Court gave less weight to the claim language when applying the doctrine of equivalents.<sup>85</sup> Instead, the Court allowed a patent to cover an invention that fell outside the language of the claim, but still “perform[ed] substantially the same function in substantially the same way to obtain the same result.”<sup>86</sup> But even at the time of *Graver Tank*, there was concern with this interpretation because of the idea that what was “not specifically claimed [wa]s dedicated to the public.”<sup>87</sup> This decision was interpreted to allow equivalents to the inventive idea in the claim and permitted the broadening of claim scope.<sup>88</sup> But the Court later clarified that it really intended the doctrine of equivalents to apply only to individual elements of the claim and that the core inquiry is “[d]oes the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?”<sup>89</sup> This statement supported the Court’s later decision to analyze claims as a whole. The Court interpreted the doctrine of equivalents in a manner that would not broaden the scope of the claim, as would have been the case under the inventive concept theory.

Finally, the doctrine of repair or reconstruction was impacted by the claim as a whole treatment because it allowed greater amounts of repair without infringing a patent.<sup>90</sup> In determining whether a repair or reconstruction had been made, courts prior to 1952 based their decisions on whether the replacement of a portion of the patented product was a minor repair.<sup>91</sup> But when the Court confronted this problem in *Aro Mfg. Co. v. Convertible Top Replacement Co.*, it held

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83. *Hotchkiss*, 52 U.S. at 259.

84. *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 28–29 (1997).

85. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950).

86. *Id.* at 607–08 (internal quotation marks omitted) (quoting *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929)).

87. *Id.* at 614.

88. *Warner-Jenkinson Co.*, 520 U.S. at 28–29.

89. *Id.* at 29, 40.

90. *Aro Mfg. Co.*, 365 U.S. at 346.

91. *Id.* at 338.

that the replacement of unpatented components of a patented combination was within the right of an owner to repair.<sup>92</sup> This decision supported the claim as a whole thinking because it treated each claim element equivalently and did not look for an inventive core of the claim.<sup>93</sup> Thus, the exclusionary grant given to the patentee was narrowed under the claim as a whole doctrine.

After these decisions, a patent claim came to be thought of as defining the “metes and bounds” of an invention instead of mere “verbalism” used to describe the invention.<sup>94</sup> Accordingly, it is perhaps not surprising that the Court in *Diehr* imported this thinking to section 101, holding that “claims must be considered as a whole.”<sup>95</sup> Of particular note is the lack of citation or rationale when making this statement.<sup>96</sup> Instead, the Court seemed to unthinkingly import their rationale for treating the claim as a whole in the infringement context into section 101. This unthinking importation has caused the courts problems in developing a clear test to determine when a claim is directed to patent-eligible subject matter.

### **III. The Problem with Interpreting the Claim as a Whole and a Three-Factor Analysis for Determining Whether a Claim is Patent Eligible**

The problem with treating the claim as a whole while making determinations as to whether a claim covers patent-eligible subject matter is that it is usually impossible to determine whether a claim is directed to a law of nature, natural phenomena, or abstract idea without breaking it apart. While treatment of the claim as a whole allows the Court to divide a claim into portions directed to patent-eligible and unpatentable subject matter in the same way that the Court matches elements of claims to prior art when determining novelty or non-obviousness, such treatment does not allow the Court to judge what type of limitations need to be present in the patent-eligible portions of a claim to confer patent eligibility on the claim.<sup>97</sup> Instead, the Court is left to issue conclusory opinions stating simply

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92. *Id.* at 346.

93. *Id.*

94. *Graver Tank*, 339 U.S. at 607; MANUAL OF PATENT EXAMINING PROCEDURE, § 2173.05(a).

95. *Diamond*, 450 U.S. at 188.

96. *Id.*

97. *See Aro Mfg. Co.*, 365 U.S. at 344–46.

that the claim as a whole is not patent eligible because it is directed to unpatentable subject matter.<sup>98</sup> Luckily, the claim as a whole requirement can easily be abandoned for section 101 purposes.

**A. Reasons to Abandon Claim as a Whole Interpretation to Determine Whether the Claim is Directed to Patent-Eligible Subject Matter**

There are two compelling reasons to stop treating the claim as a whole when determining patent eligibility. First, judicial opinions have already stopped analyzing claims as a whole, so the Court should not continue to articulate a policy that it does not itself follow. Second, breaking the claim apart actually serves to further the policy goals of section 101.

The Court's analysis in *Prometheus* did not treat the claim as a whole.<sup>99</sup> Instead, the Court analyzed the patent-eligible portions of the claim separately and looked to their inventiveness in making its patent-eligibility determination.<sup>100</sup> Discussing the novelty of a particular portion of the claim is anathema to the claim as a whole method of claim interpretation.<sup>101</sup> Thus, while the Court gave no explicit indication that it was moving away from the treatment of claim as a whole, its analysis was conducted in a manner that conflicts with the claim as a whole doctrine.<sup>102</sup>

Looking at the novelty of the patent-eligible portions of the claim, instead of treating the claim as a whole, also serves the policies underlying section 101. Section 101's requirements attempt to relieve the tension between preventing the monopolization of "the basic tools of scientific and technological work" that could impede, rather than promote, innovation and provide incentives to inventors to continue to innovate.<sup>103</sup> The goal then, is to allow an inventor to "claim all that they have actually invented" and nothing more.<sup>104</sup> Thought of in this way, the purpose of section 101 is served by dividing the claim because the portion of the claim directed to

98. See *Bilski*, 130 S. Ct. at 3231.

99. *Mayo Collab. Servs.*, 132 S. Ct. at 1297-98.

100. *Id.*

101. *Id.*

102. *Id.*

103. Lemley et al., *Life After Bilski*, 63 STAN. L. REV. 1315, 1325-26 (2011); *Mayo Collab. Servs.*, 132 S. Ct. at 1293.

104. Lemley et al., *Life After Bilski*, 63 STAN. L. REV. at 1328.

unpatentable subject matter is not and cannot be inventive.<sup>105</sup> Thus, if there is no inventive concept in the other portions of the claim, the patentee is not entitled to the patent.

### **B. Three-Factor Analysis to Determine if a Claim Is Patent Eligible**

In lieu of treating the claim as a whole, the PTO and the courts should execute a three-factor analysis. Before beginning the analysis, the examining institution should explicitly divide the claim into unpatentable and patent-eligible portions.<sup>106</sup> This division, which will force the acting institution to specifically identify the unpatentable and patent-eligible portions of a claim in its opinions and office actions, will have two beneficial effects. First, a required division of claims into unpatentable and patent-eligible portions will ensure that institutions make reasoned, rather than conclusory, patent eligibility determinations. Second, the dissemination of such reasoned determinations will create a tapestry of decisions, which will provide patent practitioners more guidance on when a claimed invention is patent eligible.

After dividing the claim, the institution should conduct the three-factor analysis to determine if the claim limitations directed to patent-eligible subject matter are sufficient to confer patent eligibility. The three factors that an institution should balance when determining patent eligibility are dependency, preemption, and novelty/non-obviousness.

The first factor that should impact decisions of patent eligibility is the dependence of the unpatentable subject matter on the patent-eligible subject matter. This requires an investigation of whether the unpatentable matter would still have utility even in the absence of the patent-eligible subject matter. For instance, if the unpatentable subject matter has no utility without the patent-eligible subject matter in the claim, this is a clue that the claim is patent-eligible. In *SiRF Technology*, the Federal Circuit held that the claim at issue was patent eligible because a person's position could not be determined without the use of a GPS receiver.<sup>107</sup> This logic also seems to apply to the decision in *Research Corp.*, which held that halftoning was patent-

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105. Chakrabarty, 447 U.S. at 309 (“[L]aws of nature, physical phenomena, and abstract ideas . . . [are] free to all men and reserved exclusively to none.” (quoting *Funk Bros. Seed Co.*, 333 U.S. at 130 (internal quotation marks omitted))).

106. By “institution,” I mean the PTO or the court reviewing a claim.

107. *SiRF Tech.*, 601 F.3d at 1332. See generally *infra* Section IV-A.



eligible because it could not be performed without a computer.<sup>108</sup> On the other hand, in *Cybersource*, the claimed method of detecting fraud could have been performed by pen and paper, leading the court to conclude that the claim was not patent-eligible.<sup>109</sup>

The second factor that should impact the determination of patent eligibility is the preemption of the unpatentable concept by the claim. Preemption concerns have been a recurring theme in the Court's decisions.<sup>110</sup> In analyzing this factor, when the claimed invention preempts more of the law of nature, physical phenomena, or abstract idea previously identified when the claim was divided, there are greater concerns that the claim is unpatentable. For instance, the claim of a mathematical formula used on a general purpose computer in *Benson* preempts any use of the mathematical formula on any computer.<sup>111</sup> Such a claim would prevent the use of the unpatentable formula in many different contexts.<sup>112</sup> On the other hand, a similar claim where the general purpose computer was replaced by a CD played on a specific computer at a specific location during a specific time of day would not raise the same types of preemption concerns as the claim scope preempts much less of the abstract idea.<sup>113</sup> In looking to the amount of preemption, it is important to distinguish the scope of the abstract idea from the portion of the abstract idea that the claim covers. For instance, the mathematical formula in *Benson* is of much smaller scope than electromagnetism as referenced in *Morse*.<sup>114</sup> What is important is not the scope of the unpatentable subject matter, but the amount of the unpatentable subject matter that is preempted by the claim. For instance, preemption of a small portion of a large concept, like electromagnetism, could prove a greater impediment to the public use than a large portion of a smaller abstract concept. Once the amount of preemption is determined, the institution ought to determine if the claim preempts so much of the abstract idea that it

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108. *Research Corp. Techs., Inc.*, 627 F.3d at 869. See generally *infra* Section IV-B.

109. *Cybersource Corp.*, 654 F.3d at 1372–73. See generally *infra* Section IV-C.

110. See, e.g., *Gottschalk*, 409 U.S. at 71–72 (“[T]he patent would wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself.”); *Le Roy*, 55 U.S. at 175 (holding that a principal cannot be patented because no one has an exclusive right to a patent on a principal).

111. *Gottschalk*, 409 U.S. at 71–72.

112. *Id.*

113. Though such a change in the claim would reduce preemption concerns, it does not follow that by restricting scope a claim would become patent eligible. Instead, it merely changes the balancing when determining patent eligibility.

114. *Id.*; *O'Reilly*, 56 U.S. at 119.

infringes on the “exclusive right” of the public to use the unpatentable subject matter.<sup>115</sup>

The third factor that should impact patent eligibility is the novelty and nonobviousness of the patent-eligible portions of the claim. This analysis differs from those in sections 102 and 103 because it is focused only on the patent-eligible portions of the claim as opposed to the whole claim. Where the patent-eligible portions of a claim are not novel, it indicates that the inventive concept of a claim may be derived from the unpatentable portion of the claim rather than the patent-eligible portion. *Prometheus* applies this factor when it notes the “determining” step as a method that is “well known in the art.”<sup>116</sup> This factor, as well as *Prometheus* itself, also harkens back to *Flook*’s acknowledgement that the “inventive application of the principle may be patented.”<sup>117</sup> Thus, this will require an examiner or a court to make a judgment about the novelty and obviousness of the patent-eligible portion of a claim. To do so, an examiner or the court may have to draft its own claim language to compare the scope of the patent-eligible portion of a claim to a prior art claim.<sup>118</sup>

After separately analyzing the dependency, preemption and novelty/nonobviousness of a claim, examiners or the court should balance the three factors. There are a couple of situations in which one factor will predominate and indicate that a claim is patent eligible. First, if the unpatentable portion of the claim depends entirely on the existence of the patent-eligible portion of the claim for utility, the invention will almost certainly be patent eligible. This is true because the invention would have no utility absent the patent-eligible portion, which also means that the claim does not preempt any practical use of the unpatentable portion of the claim. Second, where the patent-eligible portions of a claim are both novel and nonobvious, the claim is likely directed to patent-eligible subject matter. This is true because such novelty appearing in the patent-eligible portion of a claim indicates that the claim is directed to an application of the unpatentable subject matter rather than claiming the unpatentable subject matter itself.

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115. *Le Roy*, 55 U.S. at 175.

116. *Mayo Collab. Servs.*, 132 S. Ct. at 1298.

117. *Parker*, 437 U.S. at 594.

118. By suggesting that an examiner or court draft claim language to describe the patent-eligible portion of a claim, I do not mean to suggest that such drafting will be easy or without controversy. But, where claims inherently capture both patent-eligible and unpatentable concepts, it is critical to understand and articulate the inventive concept.

But, while these two situations will yield relatively simple balancing, there are many situations in which there will be marginal dependence on the patent-eligible portion of a claim for an invention to have utility, some preemption of the unpatentable portion of the claim, and little novelty in the patent-eligible portion. In such unclear cases, the examining institution should remember patent system's goal of properly incentivizing and rewarding innovation when it balances the three factors.

The proposed three-factor analysis will not always be straightforward. Process claims, like the one in *Prometheus*, are more likely to lend themselves easily to this analysis because the individual steps will often be directed to either patent-eligible or unpatentable subject matter. Further, the reason claims are currently treated as a whole for infringement purposes is the difficulty in comparing two patents without using the claim terms themselves to provide the metes and bounds for the analysis.<sup>119</sup> Thus, it will be difficult for an examiner or the court to articulate an inventive concept within the claim language and compare that to inventive concepts in the prior art. But, while sometimes difficult, this three-factor analysis will lead to more predictability and rationality in administrative and judicial decisions on the scope of patent-eligible subject matter.

#### **IV. Federal Circuit Cases Post-*Bilski* and Application of the Three-Factor Analysis**

After the Supreme Court issued their decision in *Bilski*, the Federal Circuit issued decisions in several cases. Analyzing each of these decisions will provide an understanding of how the Federal Circuit interpreted and applied the Supreme Court's precedents prior to *Prometheus*. Also, by applying the proposed analysis to the claims at issue, it will demonstrate how the proposed three-factor analysis clarifies the patent-eligibility determination.

##### **A. *SiRF Technology, Inc. v. International Trade Commission***

First, in *SiRF Technology, Inc. v. International Trade Commission*, the court evaluated the eligibility of a claim for calculating an absolute position of a GPS receiver.<sup>120</sup> Independent

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119. See *supra* Section I-B.

120. *SiRF Tech., Inc.*, 601 F.3d at 1323.

claims from two patents were at issue, along with their accompanying dependent claims.<sup>121</sup> The independent claim in the '801 patent recited

A method for calculating an absolute position of a GPS receiver and an absolute time of reception of satellite signals comprising: providing pseudoranges that estimate the range of the GPS receiver to a plurality of GPS satellites; providing an estimate of an absolute time of reception of a plurality of satellite signals; providing an estimate of a position of the GPS receiver; providing satellite ephemeris data; computing absolute position and absolute time using said pseudoranges by updating said estimate of an absolute time and the estimate of position of the GPS receiver.<sup>122</sup>

The independent claim in the '187 patent recited

A method, comprising: estimating a plurality of states associated with a satellite signal receiver, the plurality of states including a time tag error state, the time tag error state relating a local time associated with said satellite signal receiver and an absolute time associated with signals from a plurality of satellites; and forming a dynamic model relating the plurality of states, the dynamic model operative to compute position of the satellite signal receiver.<sup>123</sup>

The court applied the machine-or-transformation test, holding that “the use of a specific machine or transformation of an article must impose meaningful limits on the claim’s scope to impart patent eligibility.”<sup>124</sup> Though this claim used an algorithm, the court found the claim to be directed to patent-eligible subject matter because the GPS receiver is a machine and “without a GPS receiver it would be impossible to either generate pseudoranges or to determine the position of the GPS receiver.”<sup>125</sup> The court also held that the presence of the GPS receiver placed a “meaningful limit on the scope of the claims.”<sup>126</sup> In so holding, the Court seemed to lay out a test to determine when a meaningful limit is imposed, holding that “it must play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for

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121. *Id.* at 1331.

122. *Id.*

123. *Id.* at 1331–32.

124. *Id.* at 1332.

125. *Id.*

126. *Id.* at 1332–33.

permitting a solution to be achieved more quickly.”<sup>127</sup> Further, the court specifically noted that the method described by these patents could not be performed without a machine.<sup>128</sup>

This decision, while providing some discussion of the GPS system as integral to the claimed process, is conclusory. The test articulated by the Federal Circuit, that the machine play a “significant part” in the process, does not really provide any guidance beyond the Court’s previous note that post-solution activity around unpatentable subject matter does not lead to a patent-eligible invention while an application of an unpatentable idea may be patent eligible.<sup>129</sup> If the court were to adopt the three-factor analysis, the outcome would be the same, but the rationale would be much clearer.

To start, the court would articulate the unpatentable subject matter incorporated in the claim as well as the patent-eligible elements of the claim. For the ‘801 patent, the court may have declared that the calculations and estimates were directed to unpatentable subject matter as focused on calculations and estimates that could be made entirely in the human mind. Similarly, they would likely have held that the GPS receiver, satellite signals, and GPS satellites were not abstract ideas and, on their own, are patent-eligible subject matter. Then, the Court would need to perform the three-factor analysis to determine if the patent-eligible subject matter renders the claim patent eligible.

First, the court will look to the dependence of the unpatentable subject matter on the patent-eligible subject matter. Here, the court specifically notes that the human mind is unable to receive the satellite signals. Thus, while the algorithm could be performed mentally, it would not have any utility that would help a person determine their position without the patent-eligible subject matter in the claim.

Second, the court will look to the preemption of the unpatentable portion of the claim. Because the algorithm cannot be used without the patent-eligible subject matter, no use of the unpatentable mental process would seem to be preempted by the grant of this patent.

Third, the court will look to the novelty and nonobviousness of the patent-eligible portions of the claim. Here, based on the court’s

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127. *Id.* at 1333.

128. *Id.*

129. *Parker*, 437 U.S. at 590.

discussion, the patent-eligible portions of the claim seem to be at least obvious and perhaps lacking novelty as well.<sup>130</sup> Thus, this factor should weigh against patent eligibility.

To be consistent with precedent, the court should hold that where no preemption of the abstract idea occurs and there is complete dependence of the unpatentable subject matter on the patent-eligible subject matter to achieve the claimed utility, the claim is patent eligible even if the patent-eligible portions are not novel. This would not relieve the patentee of the burden of showing that the claim as a whole, including both unpatentable and patent-eligible subject matter, is novel and nonobvious under sections 102 and 103, but this combination could be treated as a combination of known elements, which may be patentable.<sup>131</sup> Further, such a balancing is consistent with the machine-or-transformation test's status as a useful clue to patentability because most claims that pass the machine-or-transformation test will also weigh in favor of patent eligibility in both the dependence and preemption factors.

**B. *Research Corp. Technologies, Inc. v. Microsoft Corp.***

Next, in *Research Corp. Technologies, Inc. v. Microsoft Corp.*, the court evaluated a patent that used an algorithm to enable digital halftoning.<sup>132</sup> The patent in controversy was for a method of halftoning by comparing the image of each pixel to a specific blue noise mask designed to be visually pleasing.<sup>133</sup> The Court based its decision upon claims from two patents.<sup>134</sup> Claim 1 of the '310 patent recited

A method for the halftoning of gray scale images by utilizing a pixel-by-pixel comparison of the image against a blue noise mask in which the blue noise mask is comprised of a random non-deterministic, non-white noise single valued function which

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130. *SiRF Tech., Inc.*, 601 F.3d at 1331–32 (referring to the claimed GPS receivers and satellites generally without any indication that the receivers and satellites differ from those in the prior art).

131. MPEP, § 2106 (“[A] new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made.”).

132. *Research Corp. Techs., Inc.*, 627 F.3d at 862. Halftoning allows computers to present many different shades of color tones with a limited number of pixel colors. *Id.*

133. *Id.* at 864–65.

134. *Id.* at 869.

is designed to produce visually pleasing dot profiles when thresholded at any level of said gray scale images.<sup>135</sup>

Claim 2 of the '310 patent recited "[t]he method of claim 1, wherein said blue noise mask is used to halftone a color image."<sup>136</sup> Claim 11 of the '228 patent recited

A method for the halftoning of color images, comprising the steps of utilizing, in turn, a pixel-by-pixel comparison of each of a plurality of color planes of said color image against a blue noise mask in which the blue noise mask is comprised of a random non-deterministic, non-white noise single valued function which is designed to provide visually pleasing dot profiles when thresholded at any level of said color images, wherein a plurality of blue noise masks are separately utilized to perform said pixel-by-pixel comparison and in which at least one of said blue noise masks is independent and uncorrelated with the other blue noise masks.<sup>137</sup>

Because *Bilski* did not "provide a rigid formula or definition for abstractness," the Federal Circuit, too, declined to define abstract.<sup>138</sup> Instead, the court merely held that abstractness "should exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter and the statutory context that directs primary attention on the patentability criteria of the rest of the Patent Act."<sup>139</sup> Again, this is nothing more than restating the problem of identifying whether an application is unpatentable post-solution activity or a patent-eligible application. In this case, the court finds that there is nothing abstract about the method of halftoning because it is a specific application of a technology, not merely a post-solution activity.<sup>140</sup>

If the court applied the three-factor analysis and divided the claim into unpatentable and patent-eligible portions, it would likely have found that the actual comparison of each pixel image to a noise mask was an unpatentable mental process. But, like *SiRF Tech.*, the court also would likely have held that the inputs to that comparison in the pixels themselves are not abstract. Whether the blue mask itself

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135. *Id.* at 865.

136. *Id.*

137. *Id.*

138. *Id.* at 868.

139. *Id.*

140. *Id.* at 869.

is patent eligible seems to be an open question. On the one hand, it is an abstract assignment of threshold numbers to pixels. But, on the other hand, if there is no physicality requirement in the abstract idea doctrine, this computation may be held to be patent eligible though not tangible because it would seem to have no use outside of half-toning pixels.<sup>141</sup> Thus, forcing the court in this case to designate the various components of the claim as directed to either patent-eligible or unpatentable subject matter may have helped clarify the materiality requirement. Assuming only the pixels themselves are patent eligible, the pixels would be analyzed according to the three factors.

First, the court will first look to the dependence of the unpatentable subject matter on the patent-eligible subject matter. Here, there could be no comparison between a pixel and the noise mask without the pixels themselves. While the mathematical comparison of pixel values and noise masks could be performed mentally without the pixels, there would be no utility to such a comparison without the patent-eligible subject matter. Therefore, this factor weighs in favor of patent eligibility.

Second, the court will look to the preemption of the unpatentable portion of the claim. Because the algorithm cannot be used without the patent-eligible subject matter, the grant of this patent would not seem to preempt any alternate use of the unpatentable mental process. Therefore, this factor also weighs in favor of patent eligibility.

Third, the court will look to the novelty and nonobviousness of the patent-eligible portions of the claim. Here, based on the court's discussion, the patent-eligible portions of the claim (i.e., the pixels) seem to be at least obvious and probably lacking novelty as well because pixels were known prior to the patent. Thus, because the pixel itself is not the inventive concept of the claim, this factor weighs against patent eligibility.

The balancing is similar to that discussed above for *SiRF Technology*. Again, the court should hold that where no preemption of the abstract idea occurs and there is complete dependence of the unpatentable subject matter on the patent-eligible subject matter to achieve the claimed utility, the claim is patent eligible even if the patent-eligible portions are not novel.

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141. See Ben McEniery, *Physicality and the Information Age: A Normative Perspective on the Patent Eligibility of Non-Physical Methods*, 10 CHI.-KENT J. INTELL. PROP. 106, 123 (2010).



**C. *Cybersource Corp. v. Retail Decisions, Inc.***

In *Cybersource Corp. v. Retail Decisions, Inc.*, Cybersource patented a method of detecting credit card fraud.<sup>142</sup> Claim 3 of the '154 patent recited

A method for verifying the validity of a credit card transaction over the Internet comprising the steps of: a) obtaining information about other transactions that have utilized an Internet address that is identified with the [ ] credit card transaction; b) constructing a map of credit card numbers based upon the other transactions and; c) utilizing the map of credit card numbers to determine if the credit card transaction is valid.<sup>143</sup>

Claim 2 of the '154 patent recited

A computer readable medium containing program instructions for detecting fraud in a credit card transaction between a consumer and a merchant over the Internet, wherein execution of the program instructions by one or more processors of a computer system causes the one or more processors to carry out the steps of: a) obtaining credit card information relating to the transactions from the consumer; and b) verifying the credit card information based upon values of plurality of parameters, in combination with information that identifies the consumer, and that may provide an indication whether the credit card transaction is fraudulent, wherein each value among the plurality of parameters is weighted in the verifying step according to an importance, as determined by the merchant, of that value to the credit card transaction, so as to provide the merchant with a quantifiable indication of whether the credit card transaction is fraudulent, wherein execution of the program instructions by one or more processors of a computer system causes that one or more processors to carry out the further steps of; [a] obtaining information about other transactions that have utilized an Internet address that is identified with the credit card transaction; [b] constructing a map of credit card numbers based upon the other transactions; and [c] utilizing the map of credit card numbers to determine if the credit card transaction is valid."<sup>144</sup>

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142. *Cybersource Corp.*, 654 F.3d at 1367.

143. *Id.* at 1370.

144. *Id.* at 1373-74.

The court's analysis noted that the machine-or-transformation test is still a useful clue to patentability and also noted that Claim 3 of the '154 patent did not "meet either prong of the machine-or-transformation test."<sup>145</sup> The court then analogized this case to *Benson* and *Flook*, holding that Claim 3 was also directed to an unpatentable mental process.<sup>146</sup> It also noted that a mental process must be tied to another category of statutory subject matter to be patent eligible.<sup>147</sup> The court then notes that a human can go on the Internet to find the input data, perform the required method in his mind, perhaps with the aid of pen and paper, and then come up with a result.<sup>148</sup>

If the court performed the three-factor analysis on Claim 3, it would first divide the claim into unpatentable and patent-eligible portions. In this case, the court would have found that most of the claim was directed to unpatentable mental processes, as it did. But by specifically forcing the court to recognize whether or not the Internet is patent-eligible subject matter, patent practitioners would gain a more clear understanding of section 101.<sup>149</sup> Regardless, the computer-readable medium itself is patent eligible. After dividing the claim, the court would then apply the three-factor analysis.

First, the court would look to the dependence of the unpatentable subject matter on the patent-eligible subject matter. Here, the court noted that the credit fraud detection process could be performed solely with pen and paper. Thus, the unpatentable mental process embodied in the claim could be performed without relying on the patent-eligible portion of the claim. Therefore, this factor weighs against patent eligibility.

Second, the court would look to the preemption of the unpatentable portion of the claim. Because the algorithm could be used without the patent-eligible subject matter, all uses of the unpatentable method on any computer readable medium would be preempted. Thus, this claim preempts a large portion of the abstract idea's utility and weighs against patent eligibility.

Third, the court would evaluate the novelty and nonobviousness of the patent-eligible portions of the claim. Here, nothing

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145. *Id.* at 1369–70.

146. *Id.* at 1371–72.

147. *Id.* at 1372 (citing *In re Comiskey*, 554 F.3d 967, 980 (Fed. Cir. 2009)).

148. *Id.* at 1372–73.

149. *See id.* at 1370. The court seemed to skirt this issue, holding only that "[r]egardless of whether 'the internet' can be viewed as a machine, it is clear that the internet cannot perform the fraud detection steps of the claimed method. *Id.*

distinguishes the computer readable medium itself from any other computer readable medium. Thus, it is certainly obvious and likely to lack novelty. Therefore, this factor also weighs against patent eligibility.

In this case, the balancing of the three factors is easy as all three factors weigh against patentability. Thus, the claim should be rejected as not directed to patent-eligible subject matter.

#### **D. *Ultramercial, LLC v. Hulu, LLC***

The Federal Circuit also considered *Ultramercial, LLC v. Hulu, LLC*.<sup>150</sup> There, the court considered the validity of the '545 patent. Claim 1 of the '545 patent recites

A method for distribution of products over the Internet via a facilitator, said method comprising the steps of: a first step of receiving, from a content provider, media products that are covered by intellectual property rights protection and are available for purchase, wherein each said media product being comprised of at least one of text data, music data, and video data; a second step of selecting a sponsor message to be associated with the media product, said sponsor message being selected from a plurality of sponsor messages, said second step including accessing an activity log to verify that the total number of times which the sponsor message has been previously presented is less than the number of transaction cycles contracted by the sponsor of the sponsor message; a third step of providing the media product for sale at an Internet website; a fourth step of restricting general public access to said media product; a fifth step of offering to a consumer access to the media product without charge to the consumer on the precondition that the consumer views the sponsor message; a sixth step of receiving from the consumer a request to view the sponsor message, wherein the consumer submits said request in response to being offered access to the media product; a seventh step of, in response to receiving the request from the consumer, facilitating the display of a sponsor message to the consumer; an eighth step of, if the sponsor message is not an interactive message, allowing said consumer access to said media product after said step of facilitating the display of said sponsor message; a ninth step of, if the sponsor message is an interactive message, presenting at least one query to the consumer and allowing said consumer access to said media product after receiving a response to said at least one query; a tenth step of recording the transaction event to the activity log,

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150. *Ultramercial, LLC v. Hulu, LLC*, 657 F.3d 1323 (Fed. Cir. 2012).

said tenth step including updating the total number of times the sponsor message has been presented; and an eleventh step of receiving payment from the sponsor of the sponsor message displayed.<sup>151</sup>

The court noted that the '545 patent was an attempt to solve problems related to the declining number of Internet users viewing banner advertisements. As such, the court found it was more closely akin to a specific application used in the marketplace rather than an abstract idea.<sup>152</sup> The court also noted that the claim involved "computers and applications of computer technologies."<sup>153</sup> Then, the court engaged in an analysis with some similarity to the three-factor analysis. The court first noted that advertising as currency is an abstract idea.<sup>154</sup> But, because the steps involved computer programming and were limited to a specific application of this idea in the Internet context,<sup>155</sup> the court held that, as a whole, the claim was directed to patent-eligible subject matter.<sup>156</sup> It further explained its decision by noting that the programming of a general purpose computer turns that computer into a specific purpose computer and that enablement of the computer is a separate matter for discussion outside of section 101 patent eligibility.<sup>157</sup>

To begin the proposed three factor analysis, the claim must be divided into unpatentable and patent-eligible portions. Here, the division is similar to the one the court actually undertook. The court analyzed the component elements of the claim and cogently pointed out the differences between the unpatentable abstract idea and the patent-eligible subject matter in the claim. In this case, the patent-eligible portion of the claim is the specific purpose computer in the Internet context. Once the claim is divided, the three-factor analysis should be performed.

First, the court would first look to the dependence of the unpatentable subject matter on the patent-eligible subject matter. Here, the use of advertising as currency could theoretically be achieved outside of a specific use computer. But, it is tough to

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151. *Id.* at 1324–25.

152. *Id.* at 1328.

153. *Id.*

154. *Id.*

155. *Id.*

156. *Id.*

157. *Id.* at 1329.

imagine a situation where the real time pairing could be done outside of the Internet context that the court seemed to treat as patent eligible. Thus, this factor could weigh either towards or against patent eligibility depending on how the court viewed the scope of the utility of the abstract idea.

Second, the court would look to the preemption of the unpatentable portion of the claim. Here, if advertising as currency has uses outside of the Internet context, the use of a specific purpose computer and the Internet is a large preemption of the abstract idea. But, if the abstract idea has no specific utility absent the Internet, then there can be no true preemption because the use would be additional to the use of the idea and not preemptive of it. Therefore, this factor could again weigh either in favor of or against patent eligibility depending on how the court defined the patent-eligible portion of the claims.

Third, the court would look to the novelty and nonobviousness of the patent-eligible portions of the claim. Here, it is difficult to determine what the court is referring to as the patent-eligible portion. If it means that a specific purpose computer is patent-eligible, even if the specificity is based upon the abstract idea, it may be both novel and non-obvious. But, the court could also find that any programming of an abstract idea is inherently obvious. Thus, it is difficult to determine which way this factor would turn.

In this case, balancing each factor alone, and the factors in combination, is nearly impossible without greater clarity on which portions of the claim are patent eligible, which are directed to unpatentable subject matter, and what the court considers the utility of both the abstract idea and the claim to be. Based on the court's decision, it seems as though it considered the utility of the idea in the internet context to be the purpose of the claim and that the mental process had no utility without the patent-eligible subject matter. But, regardless of how the court would define the unpatentable and patent-eligible portions of this claim, explicitly requiring such a division would provide patent practitioners with a better understanding of patent eligibility.

**E. *Dealertrack, Inc. v. Huber***

In *Dealertrack, Inc. v. Huber*, Huber challenged Dealertrack's patenting of a process to automate the funding of car loans through a "central processor."<sup>158</sup> Claim 1 of the '427 patent recites

A computer aided method of managing a credit application, the method comprising the steps of: [A] receiving credit application data from a remote application entry and display device; [B] selectively forwarding the credit application data to remote funding source terminal devices; [C] forwarding funding decision data from at least one of the remote funding source terminal devices to the remote application entry and display device; [D] wherein the selectively forwarding the credit application data step further comprises: [D1] sending at least a portion of a credit application to more than one of said remote funding sources substantially at the same time; [D2] sending at least a portion of a credit application to more than one of said remote funding source sequentially until a finding [*sic*, funding] source returns a positive funding decision; [D3] sending at least a portion of a credit application to a first one of said remote funding sources, and then, after a predetermined time, sending to at least one other remote funding source, until one of the finding [*sic*, funding] sources returns a positive funding decision or until all funding sources have been exhausted; or, [D4] sending the credit application from a first remote funding source to a second remote finding [*sic*, funding] source if the first funding source declines to approve the credit application.<sup>159</sup>

The court's analysis distilled the claimed method into "three steps: receiving data from one source (step A), selectively forwarding the data (step B), performed according to step D), and forwarding reply data to the first source (step C)."<sup>160</sup> The court then dismissed the computer readable medium limitation in the preamble, holding that this limitation is "no less abstract than the idea of a clearinghouse itself."<sup>161</sup> Finally, the court noted that a field of use limitation does not make otherwise unpatentable subject matter patentable.<sup>162</sup> Again, this decision would have been more clear had the court specifically

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158. *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1317 (Fed. Cir. 2012).

159. *Id.* at 1317.

160. *Id.* at 1317.

161. *Id.* at 1317.

162. *Id.*

labeled certain portions of the claim as directed to patent-eligible or unpatentable subject matter and followed the three-factor analysis.

In dividing the claim before performing the three-factor analysis, the court would likely consider everything outside of the claim's preamble to be directed to unpatentable subject matter while the computer readable medium is patent eligible. The court would then analyze the patent-eligible portion of the claim based upon the three-factors.

First, the court would first look to the dependence of the unpatentable subject matter on the patent-eligible subject matter. Here, there is no reason why the claim could not be performed without a computer readable medium. Thus, the utility of the unpatentable subject matter does not depend on the patent-eligible subject matter. Therefore, this factor weighs against patent eligibility.

Second, the court would look to the preemption of the unpatentable portion of the claim. Because a computer readable medium covers many of the possible ways of using the unpatentable portion of the claim, the proposed claim preempts a large portion of the abstract idea. This factor also weighs against patent eligibility.

Third, the court will look to the novelty and nonobviousness of the patent-eligible portions of the claim. A computer readable medium itself lacks novelty. Thus, this factor also weighs against patent eligibility.

In this case, the balancing is easy because all three factors weigh against patent eligibility. Thus, the court's decision would not be impacted by the proposed method.

#### **F. *Fort Properties, Inc. v. American Master Lease LLC***

Finally, the Federal Circuit considered *Fort Properties, Inc. v. American Master Lease LLC*.<sup>163</sup> Claim 1 of the '788 patent at issue recited,

A method of creating a real estate investment instrument adapted for performing tax-deferred exchanges comprising: aggregating real property to form a real estate portfolio; encumbering the property in the real estate portfolio with a master agreement; and creating a plurality of deedshares by dividing title in the real estate portfolio into a plurality of tenant-in-common deeds of at least one predetermined denomination, each of the plurality of deedshares subject to a

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163. *Fort Props., Inc. v. Am. Master Lease LLC*, 671 F.3d 1317 (Fed. Cir. 2012).

provision in the master agreement for reaggregating the plurality of tenant-in-common deeds after a specified interval.<sup>164</sup>

The court considered the other independent and dependent claims 1 - 31 at issue as similar to Claim 1 for § 101 analysis purposes.<sup>165</sup> Claims 32 - 41 also contained the additional limitation that a computer “generate a plurality of deedshares.”<sup>166</sup>

In its analysis, the Court equated claims 1 - 31 at issue to the claims in *Bilski*, noting that the *Bilski* claims were not associated with a computer.<sup>167</sup> Then, the court held that the claim was not removed from being an abstract idea merely because it contained references to material things like deeds, contracts, and real property.<sup>168</sup> For claims 32 - 41, the court used *Ultramercial* and *Dealertrack* to represent the difference between claims involving a computer directed to a patentable process and insignificant post-solution activity.<sup>169</sup> Based on these precedents, the court held that the claim was directed to unpatentable subject matter because the computer did not “play a significant part in permitting the claimed method to be performed.”<sup>170</sup> Again, the court appeared to base its decision on the claimed computer reciting a broad and general limitation instead of a narrow one.<sup>171</sup>

In this case, if the court divided the claim into patent-eligible subject matter and unpatentable subject matter, the court would have been forced to articulate whether the real property, master agreements, and deedshares themselves were patent-eligible subject matter. Real property, as claimed, likely included only the land, which is not itself patent-eligible subject matter, even if it is tangible. Further, even though the master agreements and deedshares are written instruments that reflect agreements, the court has held that writing down an abstract idea does not make it patentable.<sup>172</sup> Thus, all of Claims 1 - 31 would have likely been held to be directed to abstract ideas and would not be patent eligible. With respect to Claims 32 -

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164. *Id.* at 1319.

165. *Id.*

166. *Id.*

167. *Id.* at 1322.

168. *Id.* at 1323.

169. *Id.*

170. *Id.* (quoting *Dealertrack, Inc.*, 674 F.3d at 1317.)

171. *Id.* at 1323-24.

172. *Bilski*, 130 S. Ct. at 3231.



41, this case is similar to *Dealertrack*, as a computer, like a computer readable medium is likely patent-eligible subject matter. After this division, the court would again perform the three-factor analysis.

First, the court would first look to the dependence of the unpatentable subject matter on the patent-eligible subject matter. Here, there is no reason why the claim could not be performed without a computer. In fact, that is exactly what claims 1-31 demonstrate because nothing in those claims is patent eligible. Thus, the utility of the unpatentable subject matter does not depend on the patent-eligible subject matter.

Second, the court would look to the preemption of the unpatentable portion of the claim. A computer seems to be a broad grant, which would cover many ways of using the unpatentable portion of the claim. Thus, the proposed claim preempts a large portion of the abstract idea.

Third, the court would look to the novelty and non-obviousness of the patent-eligible portions of the claim. As discussed above, the computer readable medium itself lacks novelty. Like the previous factors, this factor also weighs against patent eligibility.

Again, the balancing in this case is easy because all three factors weigh against patent eligibility.

## V. Conclusion

No consensus has been reached regarding the definition of an abstract idea, the bounds of patent eligibility remain unclear, and rationale to explain the court's decisions is still a hot topic in patent law.<sup>173</sup> But while some uncertainty may always exist in the bounds of patent-eligible subject matter as new technologies arise, a new approach to section 101 analyses can provide for greater clarity in determining what makes an invention patent eligible. If the courts were to move away from always treating the claim as a whole, and instead analyzed the claim in component parts, they would clarify the requirements of section 101 and help aid patent applicants, examiners, attorneys, and even the courts themselves in articulating standards for patent eligibility.

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173. See, e.g., *The Future of Patents: Bilski and Beyond*, STANFORD LAW, <http://www.law.stanford.edu/event/2011/01/28/stanford-law-review-symposium-the-future-of-patents-bilski-and-beyond> (last visited Oct. 18, 2012).